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| 10/532,673 | 04/26/2005 | Michihiko Takase | 2005_0642A | 8711 |

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| EXAMINER |
|---|
| BURKHART, ELIZABETH A |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1715 | |

| NOTIFICATION DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/532,673 | TAKASE ET AL. | |
| | Examiner | Art Unit | |
| | ELIZABETH BURKHART | 1715 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *21,27 and 29-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21,27 and 29-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/7/2011 has been entered.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 21, 27, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shintani (JP 11-080952) in view of Hidaka et al (JP 10-106441, machine translation submitted 7/28/08), Kim et al (*Effects of post-treatment of MgO on the discharge characteristics of an alternating current plasma display panel*), and Okuyama et al (JP 2001-243886, submitted 7/28/08).

Shintani teaches a process for forming an MgO film onto a substrate of an AC type plasma display panel [0002] comprising: controlling a vacuum degree in the deposition room within a certain range, introducing oxygen into the deposition room, and controlling a partial pressure of the oxygen gas introduced to said deposition room

within a certain range (Abstract). The oxygen partial pressure is kept within a certain range by controlling an amount of oxygen introduced into the deposition room while the deposition room is exhausted [0004].

Shintani does not teach introducing another gas including at least one gas selected from the group consisting of carbon monoxide and carbon dioxide; the partial pressure of the oxygen gas; the partial pressure of the another gas; or that an inert gas is introduced for controlling degree of vacuum.

Hidaka discloses forming an MgO protective layer for a plasma display panel wherein steam is introduced, in addition to oxygen, to the evaporation chamber at a specific partial pressure in order to enhance the crystal orientation of the MgO film (Abstract). The secondary emission coefficient changes with crystal orientation of an MgO film ([0003] of machine translation).

Kim discloses that the secondary emission coefficient changes for an MgO film with exposure to water vapor or carbon dioxide (p. 5, col. 1).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to introduce water vapor (i.e. steam) as suggested by Hidaka during the process of Shintani in order to enhance the crystal orientation of the MgO film. Further, it would have been obvious to use carbon dioxide as suggested by Kim as an alternative to the water vapor of Hidaka since carbon dioxide changes the secondary emission coefficient of the MgO film similarly to water vapor.

Okuyama teaches a method for forming an MgO film on a plasma display panel (Abstract) wherein a mixed gas containing an inert gas and oxygen may be introduced

to the chamber during deposition in order to control membranous quality of the film. Okuyama also teaches that the introduction of oxygen reduces oxygen deficiency [0025] which restrains the amount of dangling bonds (as evidenced by p. 8, line 15 of instant specification).

It would have been obvious to incorporate an inert gas into the process of Shintani as suggested by Okuyama in order to control the membranous quality of the film. Since Shintani teaches controlling the amount of gas (oxygen) introduced, it would have been obvious to one of ordinary skill in the art to control the amount of any gases being introduced, such as inert gas, to maintain the desired degree of vacuum.

Regarding Claim 21, Hidaka discloses an oxygen partial pressure and steam (or carbon dioxide as suggested by Kim) partial pressure within the claimed ranges (Abstract). Further, one of ordinary skill would have expected similar results using carbon monoxide since it has similar structure and properties to carbon dioxide.

Regarding Claim 27, Shintani teaches an apparatus for depositing an MgO film for manufacturing a plasma display panel, the apparatus comprising: a deposition room, a gas introducing means for introducing oxygen gas (nozzle), an exhausting means (pressure control valve), a partial pressure detecting means for detecting partial pressure of the oxygen gas (mass spectrometer), a vacuum degree detecting means (vacuum meter), and a controlling means for controlling the amount of oxygen gas introduced to said deposition room (mass flow controller) and for controlling the amount of exhausting gas (pressure computing unit) based on information from the partial pressure detecting means and vacuum degree detecting means [0002], [0004]-[0006]. It

would have been obvious to one of ordinary skill to incorporate other MFC's into the apparatus of Shintani to accomodate gases other than oxygen, such as those suggested by Hidaka, in order to enhance crystal orientation of the MgO film and to independently detect the partial pressure of each gas since Hidaka teaches maintaining the additional gas (water vapor or carbon dioxide as suggested by Kim) within a specific partial pressure range and the MFC of Shintani is suitable for maintaining a specific partial pressure of gas as shown with oxygen.

Regarding Claims 29 and 31, it would have been obvious to introduce water vapor (i.e. steam) as suggested by Hidaka during the process of Shintani in order to enhance the crystal orientation of the MgO film. Further, it would have been obvious to use carbon dioxide as suggested by Kim as an alternative to the water vapor of Hidaka since carbon dioxide changes the secondary emission coefficient of the MgO film similarly to water vapor. Further, one of ordinary skill would have expected similar results using carbon monoxide since it has similar structure and properties to carbon dioxide. Thus, it would have been obvious to introduce water vapor, carbon dioxide, carbon monoxide, or a combination thereof since one of ordinary skill would have reasonably expected similar effects on the secondary emission coefficient using any of these gases.

Regarding Claims 30 and 32, Shintani teaches an apparatus for depositing an MgO film for manufacturing a plasma display panel, the apparatus comprising: a gas introducing means for introducing oxygen gas (nozzle) and a controlling means for controlling the amount of oxygen gas introduced to said deposition room (mass flow

controller (MFC)) [0002], [0004]-[0006]. It would have been obvious to one of ordinary skill to incorporate other nozzles and MFC's into the apparatus of Shintani to accomodate gases other than oxygen, such as those suggested by Hidaka, in order to enhance crystal orientation of the MgO film and to independently detect the partial pressure of each gas since Hidaka teaches maintaining the additional gas (water vapor or carbon dioxide as suggested by Kim) within a specific partial pressure range and the MFC of Shintani is suitable for maintaining a specific partial pressure of gas as shown with oxygen. Please note that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429,1431-32 (Fed. Cir. 1997) (See MPEP 2114).

Thus, claims 21, 27, and 29-32 would have been obvious within the meaning of 35 USC 103 over the combined teachings of Shintani, Hidaka, Kim, and Okuyama.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 21, 29, and 31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of copending Application No. 10/532672 in view of Hidaka et al (JP 10-106441) and Kim et al. The '672 application teaches a method of manufacturing a PDP comprising every limitation of claim 21 except the metal oxide being magnesium oxide and the partial pressures of the oxygen gas and other gas (carbon dioxide, carbon monoxide) being controlled within a certain range. Hidaka discloses forming an MgO protective layer for a plasma display panel wherein steam is introduced, in addition to oxygen, to the evaporation chamber at a specific partial pressure (within the claimed range) in order to enhance the crystal orientation of the MgO film. Hidaka also discloses an oxygen partial pressure within the claimed range (Abstract) and that the secondary emission coefficient changes with crystal orientation of an MgO film ([0003] of machine translation). Kim discloses that the secondary emission coefficient changes for an MgO film with exposure to water vapor or carbon dioxide (p. 5, col. 1). It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to introduce oxygen and another gas (i.e. steam) at a partial pressure suggested by Hidaka during the process of '672 in order to enhance the crystal orientation of the MgO film. Further, it would have been obvious to use carbon dioxide as suggested by Kim as an alternative to the water vapor of Hidaka since carbon dioxide changes the secondary emission coefficient of the MgO film

similarly to water vapor. Further, one of ordinary skill would have expected similar results using carbon monoxide since it has similar structure and properties to carbon dioxide.

This is a provisional obviousness-type double patenting rejection.

***Response to Arguments***

4. Applicant's arguments filed 2/7/2011 have been fully considered but they are not persuasive. Applicant argues that there is no articulated reasoning as to why one of ordinary skill in the art would have modified the combination of Hidaka and Shintani to change the secondary emission coefficient of the MgO film and that there is no disclosure that such a combination would have increased an amount of dangling bonds as required by the another gas in claim 21. The Examiner disagrees. Hidaka discloses that water vapor is introduced to the chamber along with oxygen in order to enhance the crystal orientation of the MgO film (Abstract) and that the secondary emission coefficient changes with crystal orientation ([0003] of machine translation). Kim discloses that the secondary emission coefficient changes for an MgO film with exposure to water vapor or carbon dioxide (p. 5, col. 1). Thus, it would have been obvious to incorporate water vapor or carbon dioxide into the process of Shintani in order to change the secondary emission coefficient and enhance crystal orientation as suggested by Hidaka. Since Kim discloses that introduction of steam or carbon dioxide causes the secondary electron emission to change (p. 5, col. 1), it would have been obvious to control the amount of steam or CO2 introduced in order to form an MgO film having desired film properties, such as a desired secondary emission coefficient. This would inherently control the

amount of dangling bonds in the film since the change in secondary electron emission is caused by generation of dangling bonds from the C or H impurities as evidenced by p. 8, lines 4-8 of the instant specification.

Applicant argues that there is no disclosure in any of the cited art using carbon monoxide and carbon dioxide. The examiner agrees that the prior art does not explicitly disclose using carbon monoxide. However, it would have been obvious to introduce water vapor (i.e. steam) as suggested by Hidaka during the process of Shintani in order to enhance the crystal orientation of the MgO film and it would have been obvious to use carbon dioxide as suggested by Kim as an alternative to the water vapor of Hidaka since carbon dioxide changes the secondary emission coefficient of the MgO film similarly to water vapor. Further, one of ordinary skill would have expected similar results using carbon monoxide since it has similar structure and properties to carbon dioxide. Thus, it would have been obvious to introduce water vapor, carbon dioxide, carbon monoxide, or a combination thereof since one of ordinary skill would have reasonably expected similar effects on the secondary emission coefficient using any of these gases.

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH BURKHART whose telephone number is (571)272-6647. The examiner can normally be reached on M-Th 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth Burkhart/
Examiner, Art Unit 1715